

## PROFILE OF AN OIL SPILL

An extract from the TSNL International Base Line Data Coding System (IBLDCS)

INTRODUCTION: The IBLDCS Master Outline, the coding system for regional inventorying of field data records, is described more fully on page 8. When all the references concerning a particular topic are assembled from the master outline in sequence, a complete description or "profile" of that topic or species is the result.

DESCRIPTION: The oil spill profile consists of factors which must be addressed in order to evaluate the impact of an oil spill. Naturally a small spill will affect only a few factors, while a large spill may affect them all. Many of the factors are directly affected by oil (water quality, biological organisms, etc.) and many other factors are secondary or tertiary effects (strains on the tax base, induced psychological stress, etc.). A related profile which could be valuable would be the converse profile, factors which affect oil spills. This would show a two-way relationship in many cases. For example oil affects bacteria and bacteria affect the oil.

USES: When stored in an automated system, the oil spill profile or the species profiles do not exist as separate entities, but are integrated into the total data base. When one is interested in a particular topic such as oil spills, the data base can be queried for that particular profile. The request might be, for instance, to list, for each oil spill factor, the agencies, organizations, or individuals whose data has been filed under that category. For a legal assessment of oil spill damages one would also recall information on the type of study which generated the base line data, and whether this study is ongoing or completed. Such a search capability is an effective tool for determining overall funding priorities.

Such a review would reveal gaps in the data, areas where perhaps no work has been done at all, but where work needs to be done.

DAMAGE ASSESSMENT: A complete oil spill damage assessment will consist of comparing the data base which describes all these factors for a region with the sampling and inventory data taken during and after the period of peak oil spill activity.

When the sampling and inventory data is entered into the data base, the computer can be instructed to compare the situation before and after the spill to spot potential problem areas. If it was seen, for example, that the shrimp industry might be adversely affected, the shrimp profile could be pulled and correlated with the oil spill profile using the new data to assess the potential impact. If tourism was under discussion, a profile for man, the tourist, can be developed including such aspects as sportsfishing, beaches, tourism related business, development, and investments.

This powerful tool works only because of the comprehensive nature of the Master Outline.

TSNL  
January, 1980

# OIL SPILL PROFILE

Extracted from the TSNL Master Outline for Regional Inventories

- A. Physical aspects
  - I. Meteorological
  - II. Hydrological and Hydrogeomorphic
    - E. Estuary/bay system
      - 3. Water quality
        - b. Cation concentration
        - c. Anion concentration
        - d. Salinity
        - e. Specific conductance
        - f. pH
        - g. Turbidity
        - h. Transparency
        - i. Nutrients
          - 1) Carbon
      - 4. Hydrodynamic relationships
        - f. Erosion
          - 1) Shoreline
        - g. Deposition
          - 1) Shoreline accretion
          - 2) Sedimentation
    - III. Geological
    - F. Environmental
      - 1. Active processes
      - d. Erosion and accretion
      - 2. Engineering properties
        - b. Cohesion
        - d. Density
        - f. Infiltration/runoff
      - 3. Biogeochemistry
      - 4. Land Resource
      - 5. Land use
        - a. Capability
        - b. Classification
    - IV. Pedological
      - C. Description
        - 1. Physical characteristics
          - d. Texture
          - f. Consistence
          - j. Penetrability
          - k. Permeability
          - r. Aggregate stability
          - u. Porosity (%)
        - 2. Soil hydrology
          - a. Soil moisture content
          - f. Maximum water holding capacity
          - i. Runoff
          - j. Hydraulic conductivity
          - k. Infiltration rate
        - 3. Chemical characterization
          - a. Elemental
            - 1) Ion concentration
            - 3) Total carbon
          - b. Organic compounds
          - f. Wastes and pollutants
        - 5. Effects of physical interaction
          - a. Abiotic
            - 2) Chemical
          - b. Biotic
            - 1) Mechanical
            - c) Human
            - v. Mining/quarrying
          - 2) Chemical
          - c) Human
            - iv. Petroleum effluents
        - D. Use capability
          - 3. Engineering uses
            - a. Suitability
            - b. Degree of limitation
      - V. Chemical
        - C. Carbon cycle
          - 2. Aquatic
        - D. Other geochemical cycles
        - E. Dissolved oxygen - aquatic
        - F. Chemical oxygen demand - aquatic
        - G. Biochemical oxygen demand - aquatic
        - H. Atmospheric gasses
          - 1. Gaseous pollutants
          - 2. Gaseous nonpollutants
        - I. Total particulates
          - 1. Aquatic
          - 2. Airborne
        - O. Petroleum
      - B. Biological aspects
        - I. Taxonomic classification
          - A. Viruses
          - B. Superkingdom Prokaryonta
            - Division 1. Cyanobacteria
            - Division 2. Bacteria
          - C. Superkingdom Eukaryonta
            - Kingdom 1. Mycetaeae (Fungi)
              - Division 1. Gymnomycota
              - Division 2. Mastigomycota
              - Division 3. Eumycota
            - Kingdom 2. Plantae (Phyta)
              - Division 1. Chlorophycophyta
              - Division 2. Euglenophycophyta
              - Division 3. Charophyta
              - Division 4. Phaeophyceae
              - Division 5. Rhodophycophyta
              - Division 6. Chrysophycophyta
              - Division 7. Pyrrhophycophyta
              - Division 8. Cyanochloronta (Cyanophyta)
              - Division 9. Schizonta (see B.D-2)
              - Division 10. Myxomycota
              - Division 11. Eumycota (see C.K-1.D-3)
              - Division 22. Magnoliophyta (Anthophyta)
            - Kingdom 3. Animalia (Zoa)
              - Phylum 1. Protozoa
              - Phylum 2. Porifera - sponges
              - Phylum 4. Cnidaria (Coelenterata)
              - Phylum 5. Ctenophora
              - Phylum 6. Platyhelminthes - flatworms
              - Phylum 7. Mesozoa
              - Phylum 8. Rhynchocoela (Nemertina) - proboscis worms
              - Phylum 9. Gnathostomulida
              - Phylum 10. Rotifera - rotifers
              - Phylum 11. Gastrotricha
              - Phylum 12. Kinorhyncha (Echinodera)
              - Phylum 13. Nematoda - roundworms
              - Phylum 14. Nematomorpha - hairworms
              - Phylum 15. Acanthocephala
              - Phylum 16. Priapulida
              - Phylum 17. Sipuncula - peanut worms
              - Phylum 18. Mollusca
              - Phylum 19. Echiura
              - Phylum 20. Annelida - segmented worms
              - Phylum 21. Pogonophora
              - Phylum 22. Tardigrada - water bears
              - Phylum 24. Arthropoda
              - Phylum 26. Phoronida
              - Phylum 27. Bryozoa (Ectoprocta) - bryozoans
              - Phylum 28. Entoprocta
              - Phylum 29. Brachiopoda - lamp shells
              - Phylum 30. Chaetognatha - arrowworms
              - Phylum 31. Echinodermata
              - Phylum 32. Hemichordata - acorn worms
              - Phylum 33. Chordata
          - II. Ecological classification
            - C. Habitat
              - 1. Marine
              - 2. Estuary/bay
              - 3. Saline marsh
              - 5. Coastal dune complex
            - D. Abiotic interactions
              - 4. Meteorological data
                - a. Physical
                  - 5) Solar radiation
              - 5. Hydrological data
                - a. Physical
                  - 3) Water turbidity
                  - 10) Solar radiation
                - b. Chemical
                  - 10) Pollutants
                - c. Biological
                  - 1) Organic matter
                  - 2) Bacterial content
              - 6. Pedological data
                - a. Physical
                  - 8) Permeability
                  - 9) Penetrability
                - c. Chemical
                  - 1) pH
                  - 9) Other
                - e. Biological
                  - 1) Organic matter

- II. Ecological classification (continued)
  - F. Biotic/cultural interactions
    - 1. Between species
    - b. Environmental perception and world view
      - 1) Environmental perception
        - a) Perception determinants
        - b) Evaluative criteria
        - c) Problem areas
          - i. Biophysical
          - ii. Recreational
          - iv. Jobs
          - vi. Health
        - viii. Hazards
          - i) Natural
          - ii) Man-made
      - d) Attitude intensity scale
        - i. Biophysical
        - ii. Recreation
        - iv. Jobs
        - vi. Health
      - viii. Hazards
      - h) Attitudes of decision makers
        - i. Biophysical
        - ii. Recreation
        - iv. Jobs
        - vi. Health
        - viii. Hazards
      - i) Governmental guidelines
        - i. Federal
        - ii. State
        - iii. Local
    - 2) World view
  - G. Cultural interactions
    - 2. Within group interactions
      - b. Non-material culture
        - 1) Sociocultural aspects
          - a) Social subsystem
            - xv. Quality of life
              - i) Aesthetics
              - ii) Leisure
                - i) Recreation
                - viii/ Vacations
                - ix/ Recreational facilities
                - x/ Parks
                - xi/ Other
            - xvi. Social problems
              - i) Disasters
          - b) Economic subsystem
            - i. Economic organization
              - i) Agriculture, forestry and fishing
              - vii) Retail trade
              - viii) Finance, insurance, real estate
              - ix) Services
              - x) Public Administration
              - iii. Food supply
              - viii. Waste and pollution
              - ix. National/regional economic development
          - c) Political subsystem
            - iii. Governmental activities
              - ii) Public finance
              - iii) Public works
              - iv) Research and development
              - vii) Public welfare
              - ix) Miscellaneous government activities

## Appendix A: Capital resources inventory

- I. Natural resources
  - B. Water
  - C. Land
  - E. Energy
    - 1. Chemical bond
      - a. Petroleum
      - c. Natural gas
- II. Utilization of resources
  - A. Agriculture, forestry and fishing
  - 5. Fishing, hunting and trapping
  - B. Mining
    - 4. Oil and gas extraction
  - G. Retail trade
  - H. Finance, insurance, and real estate
  - I. Services
  - J. Public administration
- III. Limiting factors
  - A. Natural pressures
    - 1. Geophysical
    - b. Hydrologic
    - c. Geologic and geomorphic
  - B. Man-made pressures
    - 1. Environmental stress phenomena
      - c. Resource extraction
      - e. Land alteration
      - f. Resource renewal
    - 2. Human stress phenomena
      - a. Physical
        - 4) Visual
      - b. Economic
      - f. Governmental
        - 1) Laws
        - 2) Regulation
        - 3) Taxation

## Appendix B: Management concerns

- I. Managerial interests by industry
  - A. Industry
    - 3. Fishing and hunting
    - 7. Trade - wholesale
    - 8. Trade - retail
    - 9. Transportation
    - 12. Services
    - 13. Finance
    - 14. Insurance
    - 15. Real estate
- II. Interests by project and activity
  - B. Activities
    - 4. Resource extraction
    - 8. Waste emplacement, treatment, disposal
    - 9. Chemical treatment
    - 10. Accidents
- III. Managerial considerations by category
  - A. Organism
    - 2. Bacteria
    - 3. Plants
    - 4. Animals
      - a. Fish and wildlife
        - 1) Commercial
        - 2) Sport
        - 3) Rare and endangered
  - B. Environmental
    - 1. Physical
      - a. Air
      - b. Water
        - 1) Water quality
        - 3) Toxic substances
        - 5) Areas of high natural productivity or essential habitat
        - 6) Hazards
        - 7) Visual blight
      - c. Land
        - 1) Land resources
        - b) Soils
        - 2) Land use/land capability
        - 3) Areas of high natural productivity or essential habitat
        - 4) Areas of unique, scarce, fragile, or vulnerable natural habitats or physical features, including wild and scenic areas
        - 5) Areas of recreational value
        - 6) Areas of cultural value, including historical features and archaeological sites
        - 8) Toxic substances
        - 9) Hazards
        - 10) Visual blight

Major parameters considered applicable to TSNL fish/shrimp species profiles